ABSTRACT OF THE DISCLOSURE

A plurality of tasks such as a displacement, balance keeping, and an arm operation are simultaneously executed. Movement constraint conditions imposed to a legged robot corresponding to a task and a movement state are given by equality and inequality constraint equations regarding to a variation dx from the present state while a drive strategy of a redundancy is defined by an energy function. In regard to changes in a movement constraint condition, it is not required to have control systems specialized for each constraint condition but the changes can be corresponded only by changes in matrixes A and C and vectors b and d, so that various and dynamic constraint conditions are easily addressed. Also, a using method of the redundancy can be corresponded only by changes in a matrix W and a vector u.